EXHIBIT B

TELSTRA CORPORATION LIMITED submission to the

HUMAN RIGHTS AND EQUAL OPPORTUNITY COMMISSION

inquiry under the DISABILITY DISCRIMINATION ACT, 1992 into

DIGITAL MOBILE PHONES, HEARING AIDS AND ELECTROMAGNETIC INTERFERENCE

Telstra welcomes the Commission's invitation to make submissions on this issue of great significance to hearing-impaired Australians who wish to access mobile phone services. Telstra's submission is organised under the following headings:

1. **Use of mobile phones by the hearing impaired**
    1. It is estimated that 350,000 Australians use hearing aids. Australian Hearing provides 350,000 aids to 240,000 users, while private providers provide an estimated 180,000 aids to the other 110,000 users. There are between 600 and 1000 models of hearing aids available on the Australian market. Hearing aids can be worn either in the ear or behind the ear. The standard microphone input detects all sound. In some behind-the-ear models, it is possible for the user to switch the hearing aid to telecoil input mode, in which case the aid will detect only the magnetic signals emitted by the speaker's voice and will exclude some background noise. Hearing aids have a life of up to five years.
    2. Telstra understands that there are 1200 cochlear implantees in Australia and two types of implants.
    3. It is likely that the total number of hearing aid users and cochlear implantees will rise as the average age of the Australian population increases in the coming years.
    4. Mobile phones are an increasingly important form of telecommunication. Of those 350,000 hearing aid users, it is estimated that 200,000 use or would wish to use mobile phones. It is reasonable to assume that a similar proportion of cochlear implantees use or would wish to use mobile phones.
2. **Telstra's mobile phone networks**
    1. As a result of the decision taken by the Commonwealth Government, the analogue network (AMPS) will be shut down in greater metropolitan and surrounding areas of Sydney, Melbourne, Adelaide, Brisbane, Perth and Canberra and a significant number of country locations on 31 December 1999, and in the remaining areas by the end of 2000.
    2. The GSM digital network commenced operation in 1993. Telstra has recently introduced the CDMA digital network in the areas presently covered by the analogue network. By the end of 2000, it will extend to country locations currently serviced by Telstra's GSM network but which do not have analogue coverage, thus reaching over 95% of the Australian population.
3. **Access to Telstra's mobile phone networks**
    1. In order to access one of Telstra's mobile phone networks, the user must possess the handset

and a subscription corresponding to that network. Telstra does not itself manufacture handsets, but handsets produced by manufacturers are available through all Telstra dealers and Telstra shops.

4. AMPS and GSM technology and electromagnetic interference

1. Different types of mobile phones transmit different radio signals. Telstra MobileNet Analogue, Digital GSM and CDMA networks use FDMA, TDMA and CDMA radio access technology respectively, with GSM mobile phones operating at frequencies in the 900 and 1800 MHz range and CDMA mobile phones in the 800 MHz range.
2. Hearing aids contain a sensitive microphone which enables the hearing impaired user to hear sounds more clearly. This microphone may also detect ultra high frequency (UHF) radio signals emitted by mobile phones which are being used in the vicinity. When the amplitude of those radio signals varies at an audible rate, the hearing aid attempts to recover information from those signals by a process known as "audio rectification." The user may therefore experience electromagnetic interference which may be heard as a static-like buzzing in his or her aid.
3. Analogue mobile phones are not, as a general rule, associated with audio rectification interference of this type because the transmitted envelope is not pulsed and is essentially of constant amplitude.
4. However, because they emit radio signals of variable amplitude, digital mobile phones can be associated with electromagnetic interference, the level of which is a function of a number of factors, including:
    a. the frequency of the radio signal emitted by the digital mobile phone;
    b. the strength of that signal (which will be greater in lifts, basement carparks, the centre of steel and concrete buildings and other places in which reception is poor);
    c. the maximum amount of power radiated by the phone, which varies with mobile technologies;
    d. the vocoder rate, which also varies with network conditions;
    e. the type of hearing aid (in general, in-the-ear hearing aids are less affected than behind-the-ear aids);
    f. the degree of immunity of the hearing aid to electromagnetic interference;
    g. the distance between the phone and the hearing aid;
    h. the orientation of the hearing aid;
    i. the amount of shielding provided by the body of the individual wearing the hearing aid; and
    j. the nature of that person's deafness.
5. In 1995, Telstra funded a study by the National Acoustics Laboratory (NAL) on the compatibility of GSM mobile phones with hearing aids, leading to the publication of Report No. 131 entitled "*Interference to Hearing Aids by the Digital Mobile Telephone System, Global System for Mobile Communications (GSM)*." The interaction of five behind-the-ear and two in-the-ear models of hearing aids (which represented most of the hearing aids then in use) for both microphone and telecoil inputs and two watt hand-held GSM digital mobile phones operating at 890-915 MHz was tested, both by making objective measurements of the interference using a waveguide test and by recording the subjective reactions of actual hearing aid wearers. NAL reached the following conclusions:
    a. Almost all of the hearing aids tested were not immune from interference from a GSM mobile phone being used nearby.
    b. None of the untreated hearing aids actually tested and very few aids then in existence were suitable for communicating using a handheld GSM mobile phone.
    c. The interference mechanism is intimately associated with the essential nature of the ultra high frequency emissions of digital mobile phones. It is not an incidental by-product which might, for example, be solved by improved shielding of the mobile

phones themselves.

d. However, interference could be reduced by modifying hearing aids by reducing the size of the effective antenna in the hearing aid which responds to signals in the 900 MHz range, covering the aid in electrostatic shielding and using shunt capacitors.

5. Therapeutic Goods Administration standards for hearing aid immunity to electromagnetic interference

1. NAL's research led to the development of an Australian standard (AS1088.9) for hearing aid immunity, which specifies two standards of hearing aid immunity:
    i. If the hearing aid complies with Class C1 (released in May 1995), there will be no interference to a hearing aid when a digital mobile phone is used a metre or more away.
    ii. Compliance with Class C2 (released in July 1996) will enable hearing aid wearers to use a hand-held digital mobile phone themselves without interference.
2. All hearing aids manufactured after 1 July 1999 must comply with the C1 standard, though existing stocks of non-compliant aids may still be sold until 1 July 2001. However, the Department of Health and Aged Care has not yet made compliance with the C2 standard mandatory.
3. Essentially, unless their hearing aids comply with the C2 standard, affected hearing aid wearers will only be able to use a GSM digital mobile phone operating in the 900 MHz range in conjunction with accessories, and, even then, interference may not be eliminated in all cases.
4. Use of the hands-free mobile phone kit, which can now be purchased as a standard accessory to digital mobile phone handsets, can dramatically reduce interference by allowing the handset to be worn on the hip or in the pocket, thereby providing a suitable distance between the two items.
5. In addition, a series of hearing aid accessories which either couple with the acoustic mode of the hearing aid or with the inductive or telecoil hearing aid setting are presently (or will shortly be) available in Australia. Nokia has developed an inductive loop set which consists of a wire loop which passes around the user's neck and connects to the bottom of the handset, and is no more obtrusive than the hands-free kit described above. The loop transmits speech from the phone to the hearing aid. It has a built-in microphone and therefore enables fully hands-free operation. It is planned that hearing impaired customers will be able to test a Nokia inductive loop in all 85 Telstra Retail Shops from mid-November. Feedback from those customers who have already done so has been very good. However, this inductive loop set can only be used with certain models of hearing aids which can be switched to the telecoil position.
6. With the financial assistance of Telstra and other industry participants, Hearing Australia is presently examining the compatibility of hearing aids with GSM mobile phones operating in the 1800 MHz range.

6. CDMA technology and electromagnetic interference

1. Because CDMA digital mobile phones typically operate on lower power and their emissions have a less regular pulsing pattern, the level of interference is likely to be less than that associated with GSM phones.
2. With the assistance of Telstra funding, NAL has examined the compatibility of CDMA phones with hearing aids. The results of the first phase of testing, which involved both laboratory bench testing and subjective assessments by two persons with close to normal hearing of the level of interference, are outlined in a report entitled "*Assessment of Interference to Hearing Aids used in Australia by CDMA Digital Mobile Phones*." In the second phase of testing which is presently underway, objective measurements of hearing aid immunity made using a waveguide apparatus are being related to the subjective assessments

of the hearing aid wearers.

3. The CDMA phone which is the subject of the NAL study is of the "clam" variety, one half of which contains the earpiece and battery pack, and the other half of which contains the microphone, keypad, display, the bulk of the electronics and the antenna. The antenna is situated near the hinge of the "clam" and is therefore positioned further away from the user's head than is the case with a small "brick" CDMA phone. Nevertheless, NAL was able to estimate the level of interference associated with use of a "brick" phone by holding the hearing aid 2.5cm from the antenna on the "clam" phone. CDMA handsets transmit voice data at different rates known as "vocoder" rates, generally at the full vocoder rate when speech is continuous and dropping to one eighth of the full rate during idle periods.
4. As mentioned, Australian Hearing fits hearing aids to approximately two thirds of all hearing aid users in Australia (about 350,000 aids to about 240,000 clients). The bulk of Australian Hearing clients are fitted with programmable hearing aids which can be adjusted to match the client's individual needs. NAL tested three programmable models of hearing aids which are fitted to 82% of Australian Hearing clients. Two hearing aid users whose hearing is on the lower side of the normal range were asked to make a subjective evaluation of the interference. If they could "not perceive" or only "just perceive" interference, the phone was considered "useable." The following conclusions were reached:
    a. At least 56% of Australian Hearing clients using one of the three models of hearing aid tested (at least 46% of the total number of Australian Hearing) will be able to use a standard small "brick" CDMA phone oriented in the normal position when it is operating at maximum test power and in the variable vocoder rate, and at least 98% (80%) will be able to do so when it is operating in the full vocoder rate.
    b. At least 95% of Hearing Australia clients using one of those models (78%) will be able to use a "clam" CDMA phone when it is operating in the variable vocoder rate, and at least 98% (80%) will be able to do so when it is operating in the full vocoder rate.
5. While NAL has not tested the models of hearing aid used by the other 18% of Hearing Australia clients or the remaining one third of total users whose aids are not fitted by Hearing Australia, it seems likely that many current hearing aid wearers will be able to use a CDMA phone (i.e. without perceiving or only just perceiving interference) in most situations encountered in day to day activities without the need for any accessories.
6. It should be kept in mind when considering these figures that NAL's laboratory tests will tend to overestimate the level of interference which will be encountered in practice, which varies positively with the power radiated by the phone. This is because the tests were conducted using a specified power substantially higher than the nominal maximum power achieved by the class of CDMA handsets used with the Telstra MobileNet CDMA network (23 dBm), and the handsets will generally operate on much lower power levels when under network control. Without exception, those involved in Telstra's own trials have been able to use CDMA phones without the need for any accessories, though some have yet to complete testing in the full range of environments.
7. If the use of a CDMA phone is still associated with interference, the hearing aid user has several options:
    a. It might be possible to reduce interference with an existing hearing aid by increasing the volume on the CDMA phone to maximum and reducing the volume on the hearing aid to compensate, or by holding the handset a little further away from the hearing aid and angling it upwards, or both.
    b. If these methods are unsuccessful, use of a hands-free accessory might eliminate or reduce interference.Otherwise, the problem can only be addressed by making alterations to either the mobile phone or the hearing aid or both:
        i. It may be possible to make minor improvements in the compatibility of a

CDMA phone with hearing aids by incorporating in those phones design features such as adequate volume, adequate volume control, low electromagnetic noise from the processor and battery currents, and adequate ear piece magnetic field strength for use with aids in the telecoil position. However, as NAL stressed in its 1995 report, interference is intimately associated with the essential nature of the ultra high frequency emissions of digital mobile phones. It is not an incidental by-product which might, for example, be solved by improved shielding of the mobile phones themselves.

ii. The definitive solution is for hearing aid wearers to replace their existing aids with those which comply with the C2 standard of immunity to electromagnetic interference. While the C1 and C2 standards were developed in relation to GSM phones, a hearing aid which is immune to interference from a GSM phone will be immune to the lesser interference associated with CDMA phones.

8. Less is known about the compatibility of digital mobile phones and cochlear implants. Interference with the transmission of the radio frequency signal from the speech processor to the cochlear implant creates a similar buzzing noise to that experienced by hearing aid wearers. Some laboratory testing of the compatibility of GSM phones with cochlear implants has been done under worst case scenario conditions, with the level of interference found to depend on many of the factors listed above. Some of the 1200 cochlear implantees in Australia cannot use any phone. Interference can be reduced by altering the microphone used in the implant. It may be possible to fit microphones to some existing implants. Telstra understands that the preliminary results of testing of the compatibility of CDMA phones with cochlear implants presently being conducted by Cochlear Limited (with the assistance of equipment provided by Telstra) suggest that many cochlear implantees will be able to use CDMA technology.

7. The way forward

1. As mentioned above, one solution to the problem of electromagnetic interference would be for all hearing aid users who wish to access digital mobile phone services to wear a hearing aid which complies with the C2 standard of immunity.
2. Use of such an aid would eliminate interference associated with the use of digital mobile phones in all environments, and might also prevent electromagnetic interference from other common electrical devices.
3. As NAL explained in its 1995 report, it would not be practical to modify existing hearing aids to comply with the C1 and C2 standards. Rather, existing aids would have to be replaced with compliant aids at the end of their life, which could extend for up to five years.
4. Telstra notes that between 140,000 and 150,000 persons are eligible each year to have a hearing aid fitted either by Australian Hearing or a private provider under the program administered by the Office of Hearing Services. Certain eligibility criteria apply.
5. At present, the Department of Health and Aged Care requires that all aids fitted under this program comply with the C1, but not the C2, standard. It may be that the Department will, in its discretion, decide to mandate C2 compliance, relax the eligibility requirements and fund replacement of existing aids earlier than the normal replacement cycle would dictate.
6. However, until C2 standard technology is available in the various models of hearing aid, this remains the solution of the future.
7. Publication of a list of compliant aids and appropriate labelling of aids (whether compulsorily or as a result of voluntary action on the part of manufacturers) might provide an incentive for hearing aid manufacturers to undertake the steps necessary on their part for the solution of a problem which, it must be remembered, is the result of interaction between hearing aids and digital mobile phones.
8. In the meantime, NAL's research suggests that many (and possibly even the great majority) of hearing impaired persons will be able to access digital mobile phone services without

electromagnetic interference by using CDMA technology, including the network being deployed by Telstra.

9. In these circumstances, Telstra recognises the importance of providing hearing impaired customers with appropriate information and enabling them to test the compatibility of their aid with the handsets to be used for accessing Telstra's CDMA network.
10. Telstra has itself produced a brochure entitled "*Mobile Phones and Hearing Aids*" which has been published on Telstra MobileNet website (mobilenet.telstra.com.au) and will shortly be available through Telstra MobileNet dealers, Telstra shops, the MobileNet Customer Service line, community disability groups representing the hearing impaired, and health professionals such as audiologists/audiometrists. Telstra also proposes to mention this in the next *Analogue update* to its remaining analogue customers. In addition, Telstra has updated its internal information systems with the most current information relating to the compatability of hearing aids and mobile phones, and front-of-house staff and dealers are being advised of the changes.
11. CDMA products are now available at participating Telstra dealers and retailers and all Telstra Retail Shops. Arrangements are currently being made to have a "live" CDMA handset in every Telstra Shop for demonstration purposes. Further, Telstra is pursuing some other solutions which will assist shops and dealers to improve their demonstration of CDMA phones (for example, by establishing a special "test" number that will allow an outgoing call to be made from an unactivated CDMA phone to a recorded message). It must also be remembered that, pursuant to the Trade Practices Act, customers can return mobile phones within a reasonable time if they are found to be incompatible with their hearing aids.
12. Based on NAL's findings, Telstra expects that there will only be a small minority of hearing impaired customers who will be unable to use a CDMA phone without interference. For many of those people, the use of a hands-free kits or inductive loop accessory is likely to provide the solution.

8. Ongoing consultation

1. Telstra is currently consulting widely on the development of its Disability Action Plan for 1999-2001. As part of the Plan, Telstra will commit to monitoring issues relating to digital mobile phones and hearing-impaired consumers, including those with cochlear implants. It will monitor the availability of appropriate customer information and staff awareness of accessibility issues.
2. This new Disability Action Plan is a continuation of Telstra's commitment to ensuring that hearing impaired persons are not disadvantaged or discriminated against. It should not be forgotten that the development of CDMA technology, which to a large degree alleviates the problem of electromagnetic interference, is the result of a capital investment of over $600m by Telstra, as well as additional research costs to examine the issues relating to consumers with hearing aids and cochlear implants.
3. To assist Telstra understand existing or emerging issues, Telstra has established a Disability Forum in 1999. Ten peak disability organisations are represented, including organisations such as Deafness Forum. Disability representatives are also represented on Telstra's national and eight regional Consumer Consultative Councils which meet three times each year. These fora offer opportunities for Telstra management to examine and address difficulties and issues faced by hearing-impaired and other consumers with disabilities.

9. Conclusion

1. The position is dynamic at this stage. CDMA technology is the subject of phase 2 of NAL's Telstra-funded research into the compatibility of hearing aids and CDMA, and Cochlear Limited's research into the compatibility of cochlear implants and CDMA. GSM technology is the subject of Hearing Australia's further research and will be complemented by the development of C2-compliant hearing aids.
2. Telstra therefore believes that, rather than referring the complaint to the Commission, the

interests of the hearing impaired will best be served by an on-going process of monitoring, discussion and research, a process to which Telstra is committed (as is readily apparent from its involvement in developments to date, as described above)

3. Telstra looks forward to further discussing these issues with the Commission and having the opportunity to respond to other submissions.

EXHIBIT C

Federal Communications Commission

The FCC Acknowledges Receipt of Comments From ...

Cellular Telecommunications & Ineternet Association

...and Thank You for Your Comments

Your Confirmation Number is: '20011010691017 ' 1

Date Received: Oct 10 2001

Docket: 01-108

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CTIA
Building The Wireless Future™
Cellular Telecommunications & Internet Association

October 10, 2001

Ms. Magalie Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: *Ex Parte* Communication
WTB Docket No. 01-108

Dear Ms. Salas:

On October 4, 2001, Andrea Williams, CTIA's Assistant General Counsel, sent the attached document via electronic mail to Karen Peltz Strauss and Pam Gregory in the FCC's Consumer Information Bureau. While the document is primarily a summary of a meeting addressing issues related to hearing aid and digital wireless phones compatibility, it also includes a discussion concerning the FCC's proposal to eliminate the cellular analog requirement as outlined in its Notice of Proposed Rulemaking in the above referenced docket.

Pursuant to Section 1.1206 of the Commission's Rules, an original and one copy of this letter is being filed with your office. If you have any questions concerning this submission, please contact the undersigned.

Sincerely,

Dustun L. Ashton

Hearing Aid and Digital Wireless Phones Compatibility
Summary of Meeting
July 2, 2001

In Attendance: Ron Barnes - Cellular Telecommunications & Internet Association ("CTIA"), Steve Berger -TEM Consulting & Co-chair of ANSI C63.19 Working Group, Tim Creagan - Self Help for the Hard of Hearing ("SHHH"), John Flanders - Alexander Graham Bell Association for the Deaf ("AG Bell"), Linda Kozma-Spytek - Gallaudet University, Pam Ransom - Common Ground Solutions, Donna Sorkin – AG Bell, Andrea Williams - CTIA, Beth Wilson – SHHH; David Woodbury - Hearing Industry Association (HIA) .

The meeting was hosted by CTIA at its offices in Washington, D.C. with Pam Ransom and Beth Wilson attending via telephone conference. Andrea Williams called the meeting to order and provided a brief overview of the six-year effort by the stakeholders to address the issues of compatibility and interference between hearing aids and digital wireless phones. The purpose of the meeting was to discuss in further detail the current status of ANSI C63.19 standard, potential technical solutions to the compatibility and interference issues, and whether the stakeholders could reach consensus regarding education and outreach efforts with respect to implementation of the ANSI C63.19 standard.

Current Status of ANSI C63.19 Standard

Steve Berger reported that the ANSI C63.19 standard has been approved, and IEEE is in the process of publishing it. He provided a brief explanation of the standard and how it measures the immunity level and interference between hearing aids and digital wireless phones. There was discussion regarding the functionality of the standard in terms of both the technical parameters and its general applicability for users. Everyone agreed that both wireless and hearing aid manufacturers must work together to resolve implementation issues if consumers are to benefit.

Andrea Williams explained that the wireless industry was cautious about implementing the standard. She noted that such implementation requires wireless companies, both manufacturers and carriers, to expend significant resources and manpower, which have been substantially reduced as a result of the economic downturn. While CTIA wishes to move forward with implementation of the ANSI C63.19 standard into its certification program, it is reluctant to do so if there is little or no commitment from the various hearing aid manufacturers to implement the standard concurrently. Ron Barnes emphasized the importance of both the hearing aid and wireless industry to continue to work together with respect to coordinating the implementation phase of the standard. Several participants agreed that unless both industries are implementing the standard at the same time, the standard is virtually useless for consumers. Even if the wireless industry implemented the standard and provided consumers with the relevant immunity level of the digital wireless phone, the number is meaningless unless there is a corresponding number for the hearing aid. CTIA acknowledged that its members were very concerned about moving forward until they had a very clear sense on whether hearing aid manufacturers would concurrently implement the standard.

David Woodbury indicated that while HIA appreciates the wireless industry's concerns regarding implementation, hearing aid manufacturers were experiencing test problems with the ANSI C63.19 standard. Apparently, several hearing aid manufacturers have encountered problems with the repeatability of test results using the standard among individual hearing aids within a product or model line. Several hearing aid manufacturers have conducted tests using the standard to measure the immunity level between a specific digital wireless phone and a specific hearing aid within a product or model line. According to David, each time they conduct the test, the result is a different level of immunity. David indicated that unless the tests can be repeated successfully with consistent test results, HIA members are not inclined to implement the standard as it exists or label their products accordingly. He noted that they do not want to be in a position of making claims to consumers regarding the immunity level of hearing aids when there is such uncertainty. This would only lead to customer confusion. He also suggested that more studies needed to be done before hearing aid manufacturers would feel comfortable in making certain claims or labeling their products with respect to their immunity level with digital wireless phones. HIA has met with FDA staff regarding the repeatability and labeling issues. According to David, FDA staff has acknowledged HIA's position and concerns, and there is no immediate plan by the FDA to impose labeling requirements on hearing aids with respect to their immunity level with digital wireless phones.

In response, Steve Berger noted that the validation study for the standard demonstrated that the standard proved to help 96 percent of the consumers to accurately match phones to hearing aids and in some cases went beyond consumer expectations. Steve Berger noted that HIA, FDA and the FCC voted in favor of the standard during the balloting process. David Woodbury indicated that HIA voted in favor of the standard with the understanding that the ANSI C63.19 working group would continue to refine the standard. In addition, several participants noted that some hearing aid manufacturers are already advertising hearing aids with high immunity to RF. David was surprise by this statement, and indicated that the CEOs of the hearing aid companies had recently voted unanimously to make no claims on immunity while they dealt with the repeatability problem.

David agreed that a concerted educational effort targeted at consumers, audiologists, sales and marketing representatives in the wireless industry is a better short-term solution than implementation of the existing standard. He noted that a subgroup of the ANSI C63.19 working group are planning to meet in late August/early September to discuss the parameters for additional testing in the United States and Europe as well as global harmonization of the U.S. ANSI C63.19 with the European standard.

Upon request, Steve Berger explained briefly the difference between the U.S. and European standards. The ANSI C63.19 standard takes into account "near- field" emission and the susceptibility of wireless phones and hearing aids respectively. It is a user-related testing. The European community has also been working on an IEC standard. While both standards are considered a "user standard," the European standard uses a far-field measurement (GTEM) rather than a near-field measurement.

There was discussion regarding global harmonization of these standards before moving forward with implementation in the United States , *i.e.*, the impact on hearing aid manufacturers

that sell their products both in Europe and the United States, the length of time such harmonization efforts would take, the impact on U.S. hearing aid consumers, and the impact on. wireless phone manufacturers. Steve confirmed that a subgroup of the ANSI C63.19 working group will be meeting in late August/early September to discuss this matter. Both David and Steve estimated that such efforts generally take 6 to 12 months, but they would have a better sense of the time frame after the subgroup meets. Steve Berger agreed to report back to the group.

Potential Solutions

Representatives of AG Bell, SHHH and Gallaudet University expressed their grave concern and discontent with the slow rate of progress they believe has been made to date on this issue. They stated that the wireless industry has been less than forthcoming on disclosing the changes, if any, that have been made to digital wireless phones to address the interference issue. They also noted that while consumer groups remain committed to working with the hearing aid and wireless industries on this issue, they are discouraged by the lack of what they would consider meaningful progress.

There was considerable discussion regarding existing and potential solutions. David Woodbury indicated that hearing aid manufacturers currently are addressing the interference issue on a case-by-case basis. Specifically, if the consumer is experiencing interference between the hearing aid and the digital wireless phone, he or she can return the hearing aid to the manufacturer for an adjustment. David stated that such adjustment very often involves increasing the immunity level of the hearing aid, either through shielding or a decoupling technique. While the "case-by-case" approach is an option available to consumers, several participants agreed that such an approach provides only a short-term solution to the problem.

CTIA stated that the ANSI C63.19 standard is another viable solution provided that both the wireless and hearing aid industries implement the standard concurrently. While CTIA indicated that accessories such as the neck-loop set are available and should be considered as a potential solution, Donna Sorkin strongly disagreed. She explained that such accessories require a t-coil in the hearing aid, and only 20% of hearing aid wearers have t-coils in their hearing aids Thus, a neck-loop accessory resolves the problem for a small minority of hearing aid wearers. She also noted that some consumers find the neck-loop difficult to use, inconvenient, and ineffective. She suggested that the neck-loop set should not be considered a long-term solution, and should be considered as a short-term solution for only 20% of hearing aid wearers.

Andrea Williams suggested that consumers who wear hearing aids or have cochlear implants should have a range of choices with respect to solutions, and that this group should not limit the range to a "one size fits all" approach. She explained that while each solution alone may not serve all hearing aid wearers, perhaps with a combination of solutions a substantial majority of individuals who are hard of hearing could access a digital wireless phone with very little or no interference. Andrea stated that while she appreciated AG Bell's and SHHH's position on such accessories, she strongly recommended that the group consider a combination of the ANSI C63.19 standard as well as neck-loop accessories as viable options for consumers. Both Andrea and Ron indicated that they would also reiterate to CTIA's members that consumers

view the neck-loop accessory as a short-term solution for a limited number of hearing aid wearers and have a strong preference for a technical solution built into the phone.

Linda Kozma-Spytek noted that there are some digital wireless phones in the market that work well with certain hearing aids. She indicated that Gallaudet University has work with a number of phone manufacturers conducting user and field tests so they know that the industry is working on the issue. David also noted that phone manufacturers have and continue to work with hearing aid manufacturers in developing technical solutions. The consumer participants noted that the wireless industry has been unforthcoming with specific information as to what steps individual manufacturers are taking to develop a technical solution within the phone design and components. CTIA explained that wireless phone manufacturers generally are unwilling to share such information, because it is proprietary and competitive information. Such information generally is not even shared with CTIA staff, except under very limited circumstances, *i.e.,* CTIA Certification Program, which is subject to very stringent non-disclosure agreements, including limited access.

John Flanders noted that most consumers are not concerned with the complex technical issues and legal issues regarding confidentiality. They just want to know what digital wireless phone works with their particular hearing aids. Representatives from AG Bell, SHHH and Gallaudet University agreed that more information from the wireless industry would be very helpful. Linda noted that while consumers are strongly encouraged to "test drive" the digital wireless phone with their individual hearing aids, such "test drives" do not always provide sufficient information, knowledgeable staff, or an opportunity to try the phone with the hearing aid on a "live" network. The consumer participants also raised the issue regarding wireless carriers offering a trial period so that consumers could determine whether the digital wireless phone is compatible with their individual hearing aids. Ron Barnes noted some carriers have already implemented trial periods for consumers and that often this is a business decision on the part of a wireless carrier.

CTIA's representatives expressed their appreciation for the feedback and dialogue regarding potential solutions. They agreed to raise these issues with their members, particularly the issue of sharing more information, proprietary and non-proprietary information, with consumers. Andrea suggested that the consumer organizations consider whether they would be amenable to signing non-disclosure agreements. CTIA's representatives also indicated that it would convey to their members that while the hearing aid manufacturer's case-by-case approach, the use of accessories, and the implementation of the ASNI C63.19 standard are viable options, consumers feel strongly that such options do not solve the problem. They are, at best, short-term solutions, and they continue to have a strong preference for a long-term solution that will provide a "fix" in the phone. CTIA representatives also stated that they would ask the more specific question, "How do I get a hearing aid and a phone to work together?"

Educational Efforts

All the participants agreed that education and outreach are critical and much needed. There was consensus that all the stakeholders should take responsibility for educating their respective constituents, *i.e.,* consumers, audiologists, marketing and sales representatives,

customer care personnel, and should work cooperatively to develop an outreach program that educate consumers not only about the issue, but also what wireless services and products provide individuals who are hard of hearing with access to the digital wireless services. CTIA indicated that it has already started working on the educational aspect of this issue and has hired Pam Ransom, Common Ground Solutions, to assist in the development of the wireless industry's education and outreach program. Ron Barnes noted that CTIA will also ask HIA and consumer organizations to help CTIA reach their respective constituents.

Other Issues

Linda noted that the FCC is considering whether to repeal its requirement for cellular carriers to provide analog service. Everyone acknowledged that the wireless industry is moving to digital technology far more quickly than it had anticipated just three years ago. Consumers also understand the technical reasons for the swift deployment of digital technology, *i.e.*, spectrum shortage, more efficient use of spectrum, capacity, etc. However, Linda stated that until digital wireless services are accessible to individuals who are deaf and hard of hearing, analog service needs to remain accessible. She asked whether CTIA has taken a position on this issue, particularly in view of its work with the TTY Forum and the hearing aid compatibility issue still outstanding.

Andrea Williams stated that CTIA's Board has taken a position wherein it supports removal of the analog requirement for cellular providers since there is no similar requirement imposed on PCS providers. However, CTIA's Board has acknowledged that there must be a sunset period for the requirement in order to provide carriers with ample time to transition certain customers to digital technology, including TTY users, hearing aid users, roamers, etc. Andrea Williams assured the stakeholders that even if the FCC eliminates the analog requirement, the elimination of the regulatory requirement does not mean that cellular service providers will abandon their analog customers. Ron Barnes noted that the natural evolution of both hearing aids and digital wireless phones will alleviate some of the existing problems with interference.

Representatives from SHHH, AG Bell and Gallaudet University indicated that their organizations would actively oppose the FCC's proposal to eliminate its analog requirement for cellular service providers until digital wireless services are commercially available for all deaf and hard of hearing consumers. SHHH's and Gallaudet University's representatives emphasized that they did not oppose digital wireless technology, and made it clear that they strongly support access to digital wireless technology for individuals who are deaf or hard of hearing. They acknowledged that digital technology has so much to offer. Andrea Williams also emphasized that the wireless industry want to bring individuals who are deaf or hard hearing into the 21st century and want them to be able to access and use digital wireless technology. She stated that the wireless industry opposes "technology ghettoizing" a segment of the population, and remains very committed to providing access to wireless services and products to all Americans.

Viable Course of Action

The group agreed that for now the following is a viable course of action:

- Hearing aid and wireless phone manufacturers will voluntarily participate in the upcoming subgroup meeting of the ANSI C63.19 working group to determine whether it is feasible to conduct additional testing on the ANSI C63.19 standard in view of the repeatability problem and the issue of harmonization of the ANSI C63.19 standard with the European standard. While it has been estimated that this effort may take six to 12 months, Steve Berger has agreed to report back to the group with a more definitive time frame from the ANSI C63.19 subgroup. In the meantime, hearing aid manufacturers do not plan to implement the ANSI C63.19 standard as it currently exists and do not plan to label their products in accordance with the ANSI C63.19 standard as it currently exists. Individual hearing aid manufacturers may voluntarily chose to implement the ANSI C63.19 standard as it currently exists. If so, they will notify consumers and wireless phone manufacturers of their intentions.

- Hearing aid manufacturers will continue to address hearing aid and digital wireless phone interference on a case-by-case basis by allowing their customers to return their hearing aids to the manufacturer for adjustment in the immunity level of the aid.

- Until there is a definitive answer as to when or if hearing aid manufacturers plan to implement the ANSI C63.19 standard or its progeny, wireless phone manufacturers and carriers cannot move forward with any plans to implement the standard. The parties agree that both industries must implement ANSI C63.19 standard concurrently if the standard is to be useful to the consumer. Accordingly, the wireless industry and the CTIA Certification Program will hold implementation efforts in abeyance. During this period, wireless phone manufacturers do not plan to label their products in accordance with the ANSI C63.19 standard as it currently exists. Individual phone manufacturers may voluntarily chose to implement the ANSI C63.19 standard as it currently exists with the understanding there are no guarantees that hearing aid manufacturers may undertake a similar effort.

- Accessories such as the neck-loop set may be a viable option for some consumers who wear hearing aids equipped with t-coil and who are not averse to using such accessories to access digital wireless services. Wireless service providers and manufacturers will continue to offer such accessories to these consumers. SHHH, AG Bell and Gallaudet University do not advocate the use of such accessories with hearing aids equipped with or without t-coils as a permanent solution. They view such accessories as a short-term or interim solution and may not support the use of such accessories by their constituents.

- The ANSI C63.19 as it currently exists is a viable option for hearing aid wearers in the United States, provided that the repeatability issue can be resolved quickly and hearing aid manufacturers are willing to implement the standard concurrently with wireless phone manufacturers.

- CTIA will retain the hearing aid compatibility provision in its certification program and reevaluate its status when there is a definitive answer with respect to when or if hearing aid manufacturers plan to implement the standard or its progeny.

- The participants unanimously agreed that on-going education and outreach efforts are much needed and that in order to maximize the benefits of such efforts, the participants should coordinate their efforts. The participants also reached a consensus that such education and outreach programs should target primarily audiologists, customer care, sales and marketing personnel, and consumers. While each participant will determine the scope and media of their education and outreach programs, there was agreement that some participants may want to partner or combined their efforts in order to maximize resources and targeted audience

- CTIA agreed that it will revisit the issue of "more information" with its member companies and convey the concerns raised by consumers with respect to solutions, phone manufacturers' sharing proprietary and competitive information regarding changes in the phone to address the interference and compatibility issues, consumer interest in trial periods in order to determine whether their hearing aid works with a phone, and responding to consumer question regarding "what phone works with my hearing aid."

- CTIA will convey to its membership that service providers offering "trial periods" to enable consumers to test the compatibility of their hearing aids with a digital wireless phone would be very beneficial.

- The group will provide the FCC with a copy of the summary of the minutes from this meeting.

- The next meeting of this group will be scheduled for the Fall 2001.

Respectfully submitted,

Andrea D. Williams